Ordering number : ENN3462B

N-Channel Silicon MOSFET

2SK1459LS

Ultrahigh-Speed Switching Applications

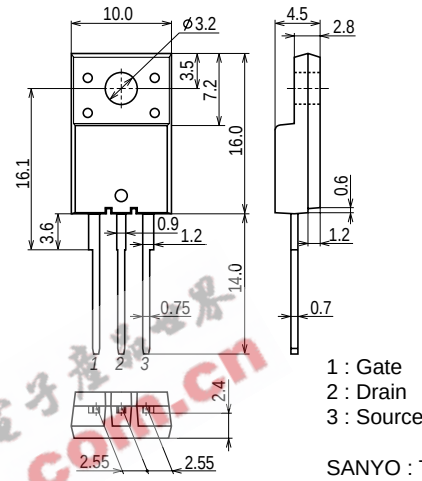
Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- Micaless package facilitating mounting.

Package Dimensions

unit : mm
2078C

[2SK1459LS]



1 : Gate
2 : Drain
3 : Source

SANYO : TO-220FI(LS)

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		900	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_D		2.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	5	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C	30	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	900			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=900V, V_{GS}=0			1.0	mA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0			±100	nA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	2.0		3.0	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=20V, I_D=1.5A	0.8	1.5		S

Marking : K1459

Continued on next page.

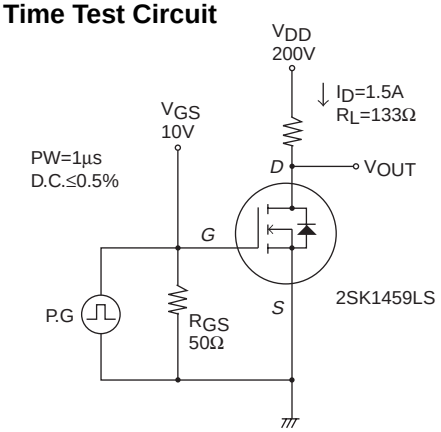
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

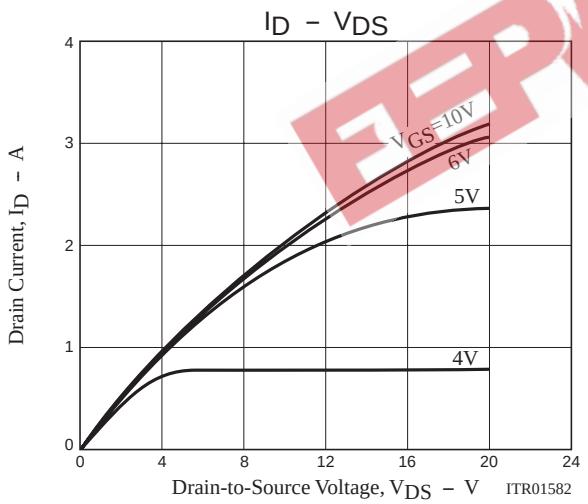
Continued from preceding page.

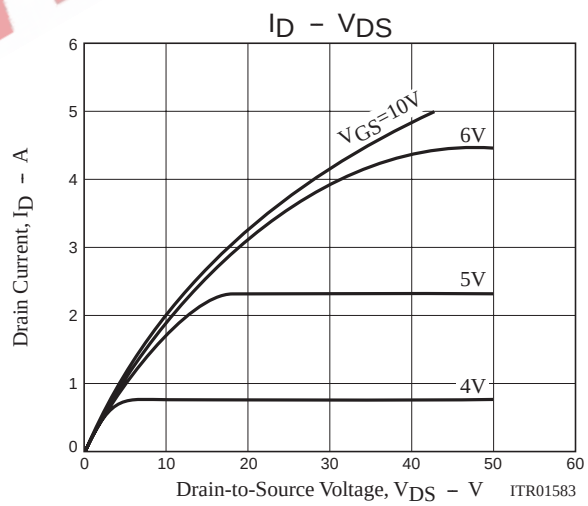
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Static Drain-to-Source On-State Resistance	R_{DS}(on)	I_D=1.5A, V_{GS}=10V		4.7	60	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		350		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		150		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		100		pF
Turn-ON Delay Time	t_d(on)	I_D=1.5A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		15		ns
Rise Time	t_r	I_D=1.5A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		25		ns
Turn-OFF Delay Time	t_d(off)	I_D=1.5A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		120		ns
Fall Time	t_f	I_D=1.5A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		40		ns
Diode Forward Voltage	V_{SD}	I_S=2.5A, V_{GS}=0			1.8	V

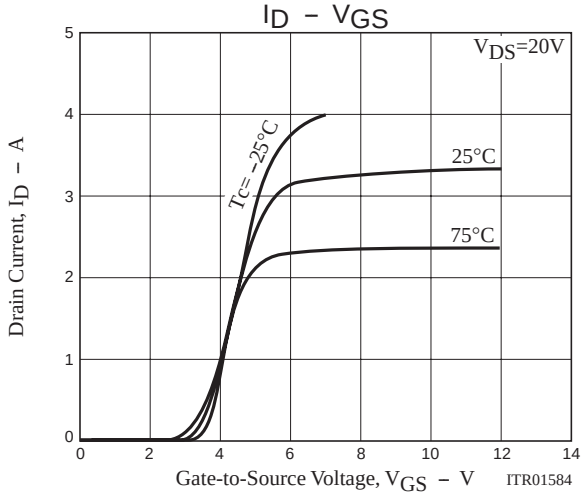
(Note) Be careful in handling the 2SK1459LS because it has no protection diode between gate and source.

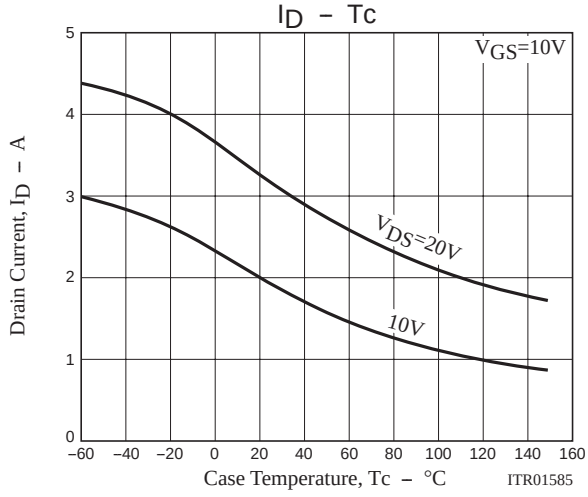
Switching Time Test Circuit

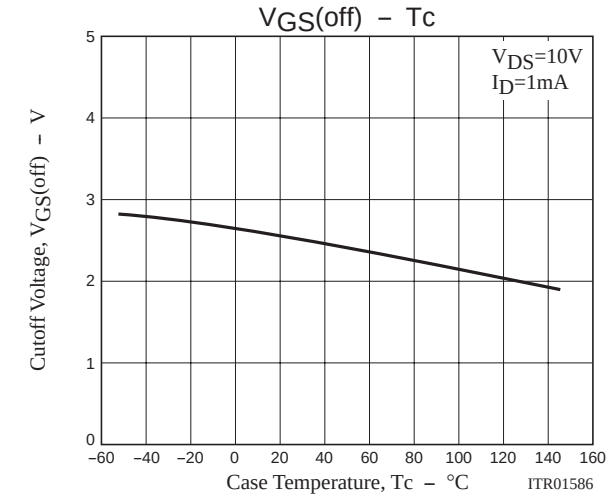


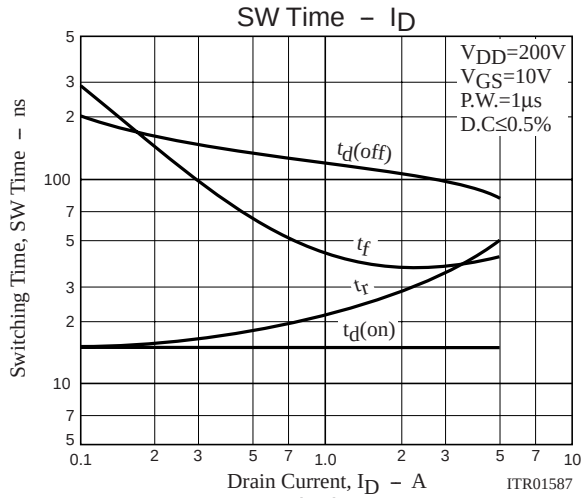


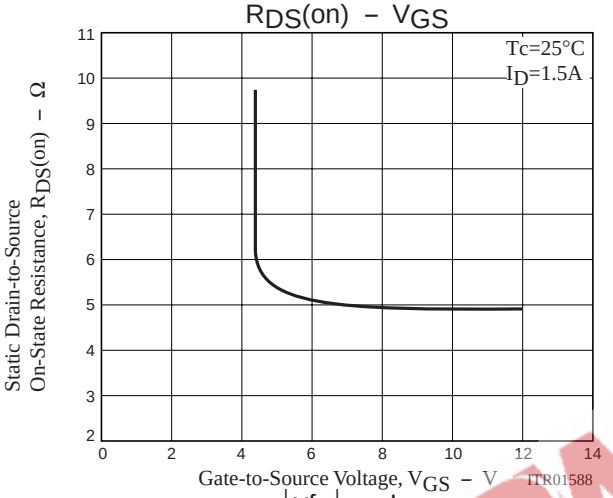


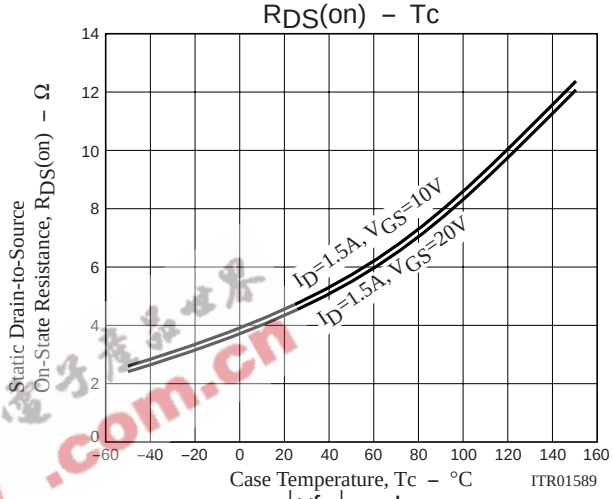


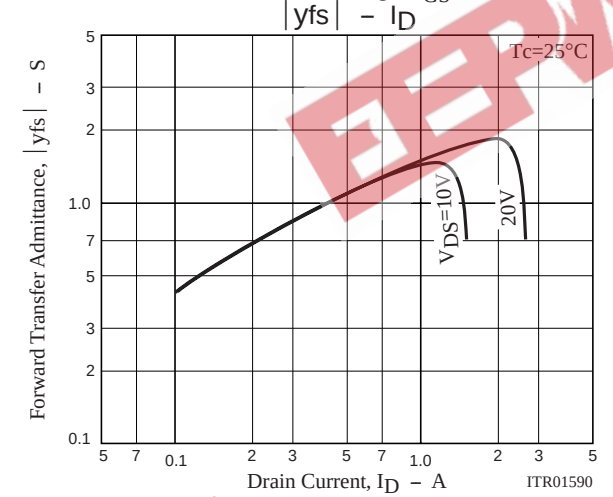


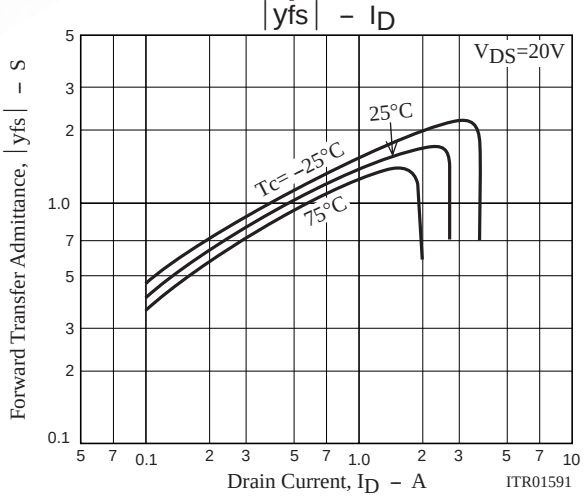

VGS(off) – Tc
VDS=10V
ID=1mA
Cutoff Voltage, VGS(off) – V
Case Temperature, Tc – °C
ITR01586

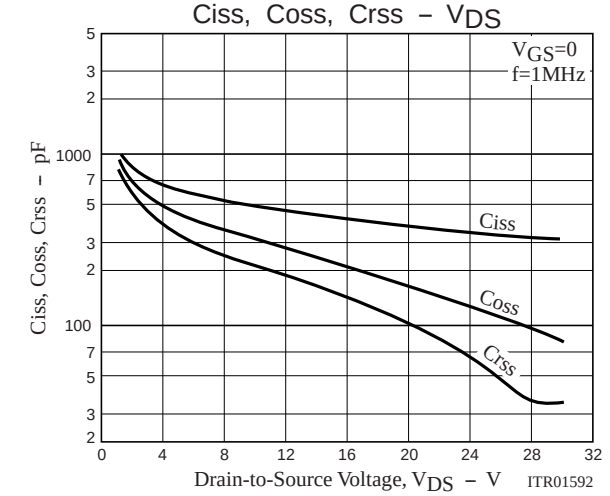

SW Time – ID
VDD=200V
VGS=10V
P.W.=1µs
D.C≤0.5%
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
ITR01587

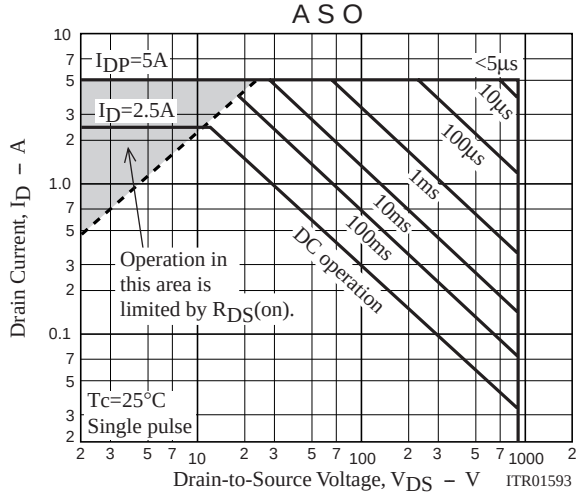

RDS(on) – VGS
Tc=25°C
ID=1.5A
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
ITR01588


RDS(on) – Tc
ID=1.5A, VGS=10V
ID=1.5A, VGS=20V
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
ITR01589


|yfs| – ID
Tc=25°C
VDS=10V
20V
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
ITR01590


|yfs| – ID
VDS=20V
25°C
Tc=–25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
ITR01591


Ciss, Coss, Crss – VDS
VGS=0
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
ITR01592


A S O
IDP=5A
ID=2.5A
<5µs
10µs
100µs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
ITR01593